

December 1994



IDAHO DEPARTMENT
OF HEALTH AND WELFARE

DIVISION OF
ENVIRONMENTAL QUALITY

Explanation of Significant Difference

Power Burst Facility Corrosive Waste Sump and Evaporation Pond Record of Decision

**at the Idaho National Engineering Laboratory
Idaho Falls, Idaho**

Explanation of Significant Difference for the Power Burst Facility Corrosive Waste Sump and Evaporation Pond Record of Decision at the Idaho National Engineering Laboratory

I. Introduction

This document presents an Explanation of Significant Difference (ESD) from the Record of Decision (ROD) for the Power Burst Facility Corrosive Waste Sump and Evaporation Pond Interim Action, which was signed by the United States Department of Energy, the United States Environmental Protection Agency, and the Idaho Department of Health and Welfare on September 30, 1992. This ROD was signed pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the December 1991 Federal Facility Agreement and Consent Order (FFA/CO) entered into by the United States Department of Energy, United States Environmental Protection Agency and the Idaho Department of Health and Welfare.

Site Name and Location:

Power Burst Facility Corrosive Waste Sump and Evaporation Pond
Waste Area Group 5, Operable Unit 13
Idaho National Engineering Laboratory

The lead agency for this action is the United States Department of Energy Idaho Operations Office (DOE-ID). The United States Environmental Protection Agency (EPA) and Idaho Department of Health and Welfare (IDHW) both concur with, and approve the need for, this significant change to the selected remedy. The three agencies participated jointly in the decision and preparation of this document.

This ESD, prepared in accordance with Section 117(c) of CERCLA and 40 CFR 300.435(c)(2)(i), is necessary to address needed modifications to the selected remedy identified in the Power Burst Facility (PBF) Corrosive Waste Sump and Evaporation Pond ROD as modified by a previous ESD dated May 1994; and is being implemented for the following reasons:

- Recent sampling data indicated that the wastes found in the Corrosive Waste Sump did not pass the Toxic Characteristic Leaching Procedure (TCLP) criteria for chromium and would have to be stabilized prior to disposal at the RWMC.
- Due to the waste not meeting the disposal criteria, and the need for stabilization, the costs for completing this Interim Action are estimated to exceed the costs included in the ROD by more than 50%.

This and other relevant documents will become part of the Administrative Record file pursuant to Section 300.825(a)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Copies of this ESD and the Administrative Record are available to the public in the following regional INEL Information Repositories:

DOE Reading Room
INEL Technical Library
1176 Science Center Drive
Idaho Falls, Idaho

INEL Pocatello Office
1651 Al Ricken Drive
Pocatello, Idaho

INEL Twin Falls Office
233 Second Street North
Suite B
Twin Falls, Idaho

INEL Boise Office
816 West Bannock
Suite 360
Boise, Idaho

University of Idaho Library
U of I campus
Moscow, Idaho

Shoshone-Bannock Library
HRDC Building
Bannock & Pima Streets
Fort Hall, Idaho

II. Site History, Contamination Problems, and Selected Remedy

The Idaho National Engineering Laboratory (INEL) is located 32 miles west of Idaho Falls, in southeastern Idaho and encompasses approximately 890 square miles of semi-arid high desert, partially overlying the Snake River Plain Aquifer. The Power Burst Facility is situated in the southeast portion of the INEL (see Figure 1). The area of focus is the corrosive waste sump and adjacent evaporation pond.

The PBF Corrosive Waste Sump is a concrete structure that was used during the neutralization of reactor secondary coolant water prior to discharge to the PBF evaporation pond. The sump measures 11 feet on each side and extends to a depth of 21 feet. The walls are 12 inch thick reinforced concrete and the base measures 15 inches thick. Discharge to the evaporation pond is through a single walled pipeline.

The evaporation pond is a lined, bermed surface impoundment, spanning 140 feet on each side. The pond was constructed in 1978 by berming native soils to 4 1/2 feet and lining the interior with Hypalon. The liner was then covered with approximately 6 inches of sand for protection. This sand has become contaminated due to the discharge of secondary cooling water containing chromium and cesium-137.

Due to the presence of chromium-contaminated dust, the decision to remediate the evaporation pond and sump was made and presented to the public in a proposed plan. The preferred alternative was the removal of areas of high chromium contamination based on the cesium/chromium correlation (high cesium concentrations were identified in the same areas as the high chromium concentrations in the sediments) that was previously identified. A grout material would be manufactured from sediments and injected into void spaces in existing certified low level waste containers scheduled for disposal in the RWMC.

Following review of public comments, the preferred alternative listed in the proposed plan was deemed by the agencies to be the most practicable. The selected remedy was presented by the DOE in a ROD and approved by the EPA, with IDHW concurrence. Following signing of the ROD, design of the remedial action commenced. The Remedial Design/Implementing Remedial Action Work Plan is filed in the Administrative Record in the binder for Operable Unit 5-13.

An ESD was signed by all three agencies in May 1994 defining significant changes to the selected remedy as outlined in the ROD. The areas to be cleaned up, the cleanup levels, and the disposal of the contaminated sediments within the RWMC was to be completed as provided in the ROD. However, that component of the remedy that deals with preparing the sediments for disposal in the low-level waste containers was modified for the reasons discussed below.

Sediment samples collected from the pond in December 1992 for a treatability study to be used in the grout design provided the following significant information:

- The previously identified correlation between the concentrations of cesium-137 and chromium was found to be invalid.
- Testing of the unstabilized pond sediment samples was done using the Toxicity Characteristic Leaching Procedure (TCLP). This confirmed that the sediments will meet the RWMC waste acceptance criteria without stabilization prior to disposal.

Because the correlation between cesium and chromium was not demonstrated during the analysis of the treatability study samples, the plan to identify "hotspots" for cleanup using a hand-held radiation detector would not be effective. Sampling of the entire pond on a 20-foot square grid was substituted for the originally planned survey. Results from this sampling effort indicated that approximately 170 cubic yards of sediments would be generated by the cleanup, rather than the 100 cubic yards estimated in the proposed plan and ROD. The treatability study results show that grouting 170 cubic yards of sediments would create a total volume of approximately 240 cubic yards of grout.

Concurrent with the treatability study, the remediation contractor initiated efforts to identify and coordinate delivery of waste containers destined for the RWMC which had sufficient void space for the projected volume of grouted sediments. This resulted in the identification of three additional issues:

- Due to implementation of waste minimization at the INEL, most waste containers had only minimal amounts of void space available for grouting.
- Most waste containers with significant void space are close to their weight limit, and cannot accept significant amounts of the dense grout material. Delaying the project pending availability of sufficient containers with both the weight capacity and enough void space to accept 240 cubic yards of grouted sediments would have significantly extended the project completion date.
- More detailed contaminant characterization of waste container contents would be needed to document worker safety and health protection. This could result in additional worker exposure, additional costs, and schedule delays.

In view of all the issues identified above, the three agencies agreed that a modification to the selected remedy was needed. Empty waste containers were used for disposal of the sediments if sufficient partially filled containers requiring only minimal further characterization of the contents are not available. Containers will be filled directly with the contaminated sediments, sealed and placed in the RWMC. Without grouting the sediments, the remedy remains protective of human health and the environment because: 1) it reduces the potential for exposure via the inhalation and direct radiation pathways, as identified in the ROD; 2) the treatability study confirmed that the ungrouted sediments meet the RWMC waste acceptance criteria, and; 3) institutional and administrative controls for a low-level waste disposal facility are presently in place at the RWMC.

III. Description of Significant Differences and Basis

The cleanup of the PBF Evaporation Pond has been completed in accordance with the plan identified in the ROD and previous ESD. However, that component of the remedy that deals with disposal of the sump sludge will be modified for the reasons outlined in section I of this ESD and further discussed below.

Sludge samples were collected from the sump in December 1994 for waste characterization and disposal purposes. Testing of the sump sludge was done using the Toxicity Characteristic Leaching Procedure (TCLP). This test showed that the sludge does not meet the RWMC waste acceptance criteria. As a result of this new information the following changes are necessary:

- The sludge will be removed, dewatered and stored at a permitted mixed waste storage facility (MWSF) pending determination of final disposition.
- The sludge will then be either stabilized and disposed of at the RWMC or in accordance with the EPA's off site rule for the Treatment Storage and Disposal Facilities.

The modified remedy will have an impact on the cost and schedule of the project as well, due to the need to store the sludge in a MWSF and to stabilize the sludge if it is to be disposed of at the RWMC. Additionally, a treatability study may have to be performed in order to determine the appropriate grouted matrix that will meet the RWMC waste acceptance criteria. Current estimates indicate that the project will exceed the estimated cost included in the ROD by more than 50%.

The Draft Final Remedial Action Report will address all aspects of the Remedial Action up to and including placement of the sludge into the MWSF. This report will be delivered to the State of Idaho and the EPA on February 17, 1995. An addendum to the Remedial Action Report will be prepared to address final disposition of the materials.

IV. Affirmation of the Statutory Determination

The revised remedy continues to utilize permanent solutions and treatment technologies to the extent practicable for the site. The original action identified for treatment and disposal of this waste (as outlined in Section 9.1 of the ROD) will be followed for the PBF Corrosive Waste Sump sludge. This includes removal of the sludge from the sump, decontamination of the sump, treatment of the sludge by grouting, if feasible based on treatability studies, and disposal at the RWMC or in accordance with the off-site rule..

Considering the new information that has developed, DOE, EPA, and IDHW all believe that the remedy remains protective of human health and the environment, complies with Federal and State requirements that have been identified as relevant and appropriate to this interim remedial action, and is cost effective.

V. Public Participation Activities

This ESD has been published and a notice placed in the Post Register (Idaho Falls), Idaho State Journal (Pocatello), Times News (Twin Falls), Southern Idaho Press (Burley), Idaho Statesman (Boise), Lewiston Morning Tribune (Lewiston), and Daily News (Moscow). This ESD and the contents of the Administrative Record are available for public review. In addition to the Administrative Record on file for the Record of Decision, the Administrative Record for this action includes a copy of this ESD, Remedial Design/Implementing Remedial Action Work Plan (RD/RAWP) and supporting information (refer to binder for Operable Unit 5-13). Although modified from the previous ESD, the remedy, as modified by this ESD, does not represent a fundamental change in scope or purpose of this action. Thus, a formal comment period will not be conducted.

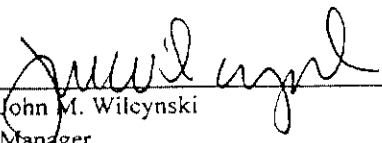
Consistent with NCP Section 300.435(c)(2)(i), this ESD has been placed into the previously listed INEL Information Repositories, after the publication of a notice in the following papers:

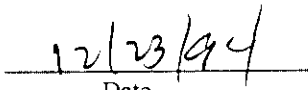
Post Register (Idaho Falls), Idaho State Journal (Pocatello), Times News (Twin Falls), Southern Idaho Press (Burley), Idaho Statesman (Boise), Lewiston Morning Tribune (Lewiston), and Daily News (Moscow)

The public is encouraged to review this ESD and other relevant documentation in the Administrative Record and provide comments to any of the agencies involved. Additional information may be requested within 14 days of the notice of issuance for this ESD by contacting:

Reuel Smith
INEL Community Relations Plan Office
P.O. Box 2047
Idaho Falls, Idaho 83403-2047
(208) 526-6864

Signature sheet for the foregoing Explanation of Significant Difference for Operable Unit 5-13 interim action at the Idaho National Engineering Laboratory between the United States Department of Energy and the United States Environmental Protection Agency, with concurrence by the Idaho Department of Health and Welfare. The Operable Unit 5-13 interim action consists of cleanup of the Power Burst Facility Evaporation Pond, Corrosive Waste Sump, and discharge pipe at the Idaho National Engineering Laboratory.


John M. Wilcynski
Manager
Department of Energy Idaho Operations Office


Date